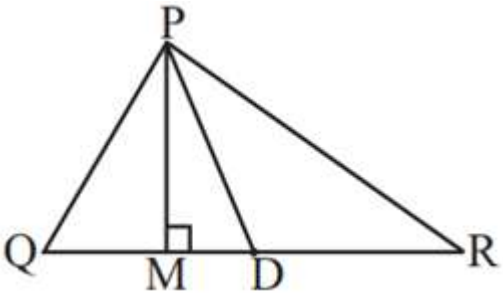
Triangle and Its Properties: Exercise 6.1

Q.1 In Δ PQR, D is the mid-point of $\overline{QR}$.

$\overline{PM}$ is _____.
PD is _____.
Is QM = MR?



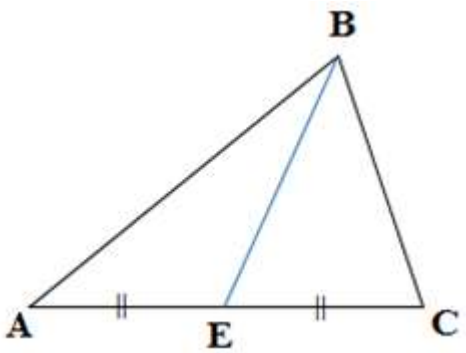
Sol:

(i) $\overline{PM}$ is **Altitude.**
Since, an altitude is the perpendicular from a vertex of the triangle to the opposite side of the triangle.

(ii) PD is **Median**.
Since, median is the line segment from a vertex of the triangle to the mid – point of opposite side of the triangle.

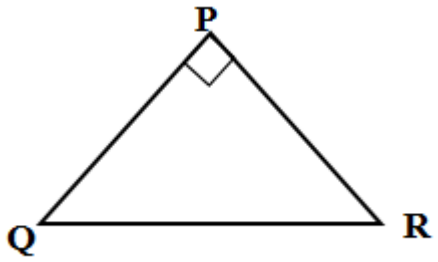
(iii) No, QM ≠ MR
Since, D is the mid-point of side QR.

Q.2 Draw rough sketches for the following:
(a) In ΔABC, BE is a median.
(b) In ΔPQR, PQ and PR are altitudes of the triangle.
(c) In ΔXYZ, YL is an altitude in the exterior of the triangle.
Sol:
(i) Given: In ΔABC, BE is a median.
Since, median is the line segment from a vertex of the triangle to the mid – point of opposite side of the triangle.
So rough sketch:

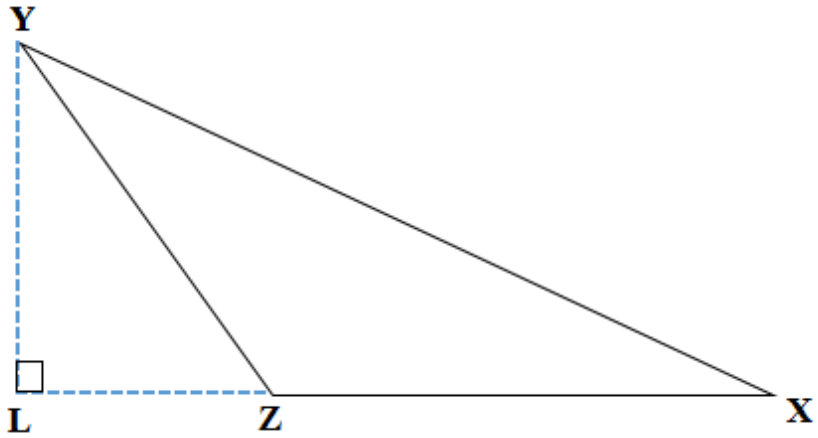


(ii) Given: In ΔPQR, PQ and PR are altitudes of the triangle.

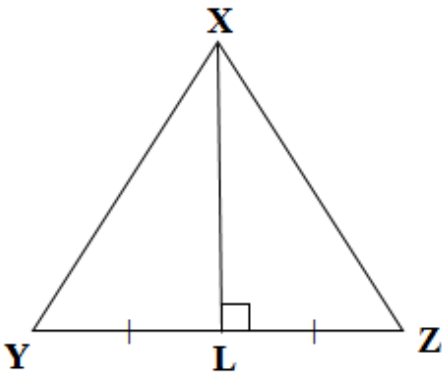
Since, an altitude is the perpendicular from a vertex of the triangle to the opposite side of the triangle.
So rough sketch:



(iii) In ΔXYZ, YL is an altitude in the exterior of the triangle.
So rough sketch:



Q.3 Verify by drawing a diagram if the median and altitude of an isosceles triangle can be same.
Sol: ΔXYZ is an isosceles triangle in which XY = XZ



Now, draw a Line segment XL ⊥ YZ. It is an altitude for this triangle. In figure, we measure the line segments YL and ZL. We observe that length of YL and ZL is same. Therefore, XL is also a median of triangle XYZ.